
Space Weather Forecast

Issued on Monday, 02 May 2022 at 13:07 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Brief lull in risk of R1/R2 radio blackouts, however activity on both eastern and western solar horizons.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was low over the past 24 hours, with occasional common-class X-ray flare activity observed. The largest flare of the period occurred at 01/1128UTC, emanating from the vicinity of returning sunspot region over the sun's southeastern horizon, and perhaps provides a hint of an upturn in activity into the coming working week. This is after the current brief lull, with the passing of many of the very active northwestern horizon groups. There were just two surviving front-sided sunspot regions by the end of the UTC day of Sunday 01 May, with both magnetically unipolar, stable and unremarkable. A third small group faded away in the northwestern quarter of the sun in the same period.

Numerous Coronal Mass Ejections (CMEs) were seen in coronagraph imagery from both limbs of the disc during the period, mainly in the vicinity of the aforementioned northwestern groups, although none of these CMEs are thought to be Earth-directed. No Earth-directed CMEs were observed in coronagraph imagery.

Solar Wind / Geomagnetic Activity: The solar wind remains characteristic of coronal hole fast wind. There are signs of this feature beginning to wane, with wind speeds around 530km/s (elevated) at the start of the period, with a steady declining trend, down to 440km/s (slightly elevated) at present. Both the magnetic field and the all important north-south components have been relatively weak throughout.

The net result of the above solar wind measures was Quiet to Unsettled geomagnetic activity.

Energetic Particles / Solar Radiation: No solar radiation storms were observed, with the trace of high energy protons only very slightly elevated above background, having declined steadily in the wake of the moderate-class flare on 29 April.

Four-Day Space Weather Forecast Summary

Solar Activity: Activity should undergo a decline in the immediate term, with the passing of successive active northwestern horizon sunspot groups, however there is a chance of some recovery as a further active region likely rotates onto the southeast into the new week.

Solar Wind / Geomagnetic Activity: The current fast wind is the only such feature in the period, and should wane through day one, Monday 02 May. No Coronal Mass Ejections (CMEs) feature in the forecast.

Geomagnetic activity should generally decline from current modest levels: staying below Minor Storm throughout and becoming quiet by midweek.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

Energetic Particles / Solar Radiation: Solar radiation storms carry a slightly raised chance of passing S1 at first, due to the presence of numerous active regions narrowly over the western solar horizon, however this risk should reduce to background by midweek.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	1	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	No	5	10	10	10
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	5	2	2	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)